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AMERICAN PHARMACEUTICAL ASSOCIATION

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Practical Pharmacy Edition

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Editorial

HOSPITAL PHARMACISTS ORGANIZE

FEW pharmaceutical associations have been organized with greater opportunities for good than the newly formed American Society of Hospital Pharmacists. Elsewhere in this issue there appear the Constitution and By-Laws of the new organization and they merit close reading, not only by every hospital pharmacist in the country, but by retail pharmacists as well.

Hospital pharmacy is a comparatively new specialty of this profession. It is a specialty which has developed to meet a real need of the hospital for qualified pharmaceutical service, but, of even greater importance, it is a specialty which has enjoyed a rapid growth because of the excellence of the services which its pioneer members have rendered. The hospital pharmacist has made his own way and created his own important place in the field of institutional health care by contributing an extremely valuable type of auxiliary medical service that has been quickly appreciated by hospital authorities. Those hospital pharmacists who were the first of their specialized calling have done a job, and have done it well, and have proved the value of their services.

The new Society has a three-fold purpose: to improve and extend the usefulness of the hospital pharmacist to the institution he serves, to the members of the other health professions with whom he serves, and to the profession of pharmacy.

The Society seeks to establish minimum standards of pharmaceutical service in hospitals to serve as a yardstick for all such institutions and to insure for all patients the finest type of pharmaceutical care, just as they today receive the best in medical, surgical and nursing attention. This will consist largely of setting down in black and white the many lessons which individual hospital pharmacists have learned from their experience and drawing up a set of standards from this vast store of practical information. As a basis for developing these standards, the Society has the requirements drafted a few years ago by the American College of Surgeons and the American Hospital Association. As a corollary to developing standards of pharmaceutical service in hospitals, the Society intends to develop a standardized post-graduate hospital training for pharmacy graduates who wish to enter the field of hospital service. This course will undoubtedly be in the form of interneship and the interne pharmacist will be thrown into close association with the interne physician, which should in itself be mutually profitable.

Of great importance to practicing pharmacists is the aim of the new Society to provide for the interchange of information among members of this profession, to encourage initiative in the development of new pharmaceutical techniques, and to maintain a close pharmaceutical contact between hospital pharmacists and pharmacists engaged in general practice. The hospital pharmacist has a splendid opportunity to work with research-minded staff physicians in the development of new pharmaceutical products for the treatment of disease. Already the leading medical journals of the country are

carrying articles that bear footnotes reading "From the Departments of Dermatology and Pharmacy of Such-and-Such Hospital." The new cough mixture, burn ointment, or wet dressing developed in a hospital is of real interest to the pharmacist and physician in general practice, and the hospital pharmacist wants to share the information he develops with those who are in a position to use it in their work among nonhospitalized patients. To aid this interchange of information, THIS JOURNAL, with the current issue, is inaugurating a section devoted to The Hospital Pharmacist.

A third aim of the new Society is to aid the medical profession in extending the economic and rational use of medicaments. There has been general concern in recent years over the fact that colleges of medicine give little time and attention to prescription writing and, as a result, the young physician entering private practice does not know how to make full use of the professional services which pharmacists are prepared to render. Since every physician must pass through a period of hospital interneship before being licensed to practice, it is obvious that the hospital pharmacist is in a position to overcome this shortcoming in medical teaching. It may be that he will be given the opportunity of lecturing and demonstrating to the interne physicians as part of the hospital training, and a general improvement in the type of medication prescribed for the American people should result.

The AMERICAN PHARMACEUTICAL ASSOCIATION is proud to have played a part in stimulating the development of hospital pharmacy and to have the new Society organize as one of its affiliates. A great number of the hospital pharmacists of the country are members of the A. PH. A., and it is hoped that they will join and support the new Society of Hospital Pharmacists to the fullest extent. Membership in the Society is open to pharmacists who have served at least one year in hospital pharmacy practice and who are members of the AMERICAN PHARMACEUTICAL ASSOCIATION. Membership can be taken out in both organizations simultaneously. It is hoped that this affiliation between the A. PH. A. and the A. S. H. P. will be helpful to all concerned, that hospital pharmacists will contribute papers freely to THIS JOURNAL, and that practicing pharmacists will make the most of the opportunity which they are afforded to benefit from the work being carried on in hospital dispensaries. Not every pharmacist has the facilities, the time, and the chance to engage in collaborative research with physicians and members of the other health professions, but every pharmacist can contribute to the dissemination of the information gained by those who do the research, and it is in the extent to which the results of research are utilized that much of its value depends.

The new Society is a great credit to the small group who have labored hard and long, and at considerable personal sacrifice, to launch the organization. It is an even greater credit, however, to the individual hospital pharmacists in New York, Cleveland, Chicago, and elsewhere who, by the quality of their devotion and service to the hospitals of this country, have created the place of this new specialized form of pharmaceutical practice. If their accomplishments as individuals are any indication, collectively they should make an outstanding contribution, not alone to hospital pharmacy, but to the profession in general.

HOW TO MAKE
AN INEXPENSIVE DRYING CABINET

by W. C. MACAULAY and H. G. DEKAY
PURDUE UNIVERSITY, SCHOOL OF PHARMACY

A DRIER FOR GRANULATIONS MAKES TABLET MANUFACTURE INDEPENDENT OF WEATHER CONDITIONS. HERE IS A PLAN FOR A LIGHT, STURDY CABINET BUILT AROUND A SECOND-HAND VACUUM CLEANER MOTOR AND BLOWER AND A SMALL HEATING ELEMENT

KEBLER[1] and Wood[2] both claim that one of the cardinal principles for the successful manufacture of compressed tablets is the proper drying of the granulated material. They both admit that most dampened granules can be sufficiently dried in the open air under favorable atmospheric conditions, but point out that no dependence can be placed upon the weather, and therefore it is imperative that suitable drying cabinets be used. They indicate that an efficient drier should be capable of providing a continuous current of fresh, clean, dry and uniformly heated air across the damp granules.

Cook and LaWall[3] state that a number of laboratories which manufacture a line of tablets are provided with special equipment which automatically controls the humidity and temperature of the whole laboratory space in which the processes of tabletting are executed. This fact alone demonstrates how essential proper drying facilities are considered by experienced tablet makers.

There are a number of very efficient drying cabinets available on the market. However, they are expensive and most of them are larger than are needed by small-scale laboratories such as colleges of pharmacy and drugstore dispensaries. We have, therefore, designed and built an inexpensive drying cabinet which has given very satisfactory results for drying tablet granulations. The blueprint and pictures show the details of its construction.

Presented before the Section on Practical Pharmacy, A. PH. A., Denver meeting, 1942.

By using 1-inch pine for the framework and 3-ply wood for enclosing the cabinet, an inexpensive, light, sturdy oven was obtained. Circulation of air is provided by a second-hand vacuum cleaner unit, which contains an electric motor, blower and a cut-out valve. The blower is capable of handling approximately 25 cu. ft. of air per minute. The motor is wired in series with a switch and a resistance for operating at half and full speeds. The cut-out valve acts as an ideal recirculating valve. When this cut-out valve is opened, fresh air is taken into the blower and forced through a sheet metal, conical shaped conductor in which is placed a heating element for warming the air. This heating element consists of two coils, wired to a three-point heat switch, so as to give 100, 200 or 300 watts resistance. This provides a means of varying the temperature of the air passing through the blower. The warmed air is then blown up a short duct to four trays, where it is forced across the damp material and is then exhausted through an adjustable opening. When the recirculating valve is shut off and the exhaust opening is closed, complete recirculation of the air in the oven results. This allows development of temperatures as high as 80° C.

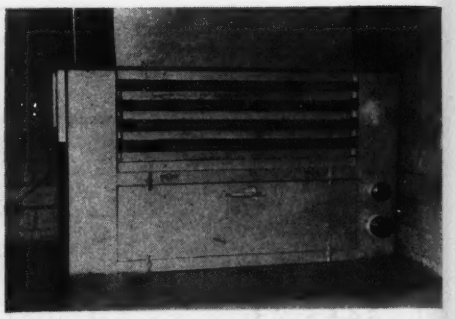
The cabinet is equipped with four removable trays, each of which is 20 inches long, 16 inches wide, and 1 inch deep. They are edged with 1-inch by 1-inch pine and floored with 3-ply pine paneling. Two narrow steel straps are attached to each tray with wood-screws, and act as runners for the tray and also strengthen it and prevent any tendency for the tray to warp.

An exhaust opening 2 inches by 10 inches is provided as shown in the blueprint. It is equipped with an adjustable sliding door which controls the amount of air being expelled. A hole is bored in the pine frame on the top, left-hand side of the drier, and a thermometer set in a one-holed cork is inserted into this hole. In this way, the temperature of the drier is recorded at the farthest point from the heating element.

When the drier is operated at high heat (300 watts), with the recirculating valve open so that

2 1/2" EXHAUST OPENING
FOUR TRAYS - 16"x 28 1/2"
RECIRCULATING VALVE
BLOWER
LONGITUDINAL SECTION
HEATING ELEMENT
RUNNERS FOR TRAYS
DOOR - HINGED AT TOP
TRANSVERSE SECTION
DRYING OVEN.
1" SCALE
MATERIAL - 1 PINE AND 3 PLY - FINISHED WITH ALUMINUM PAINT
MOTOR BLOWER - HANDLES APPROX. 25 CU. FT PER MINUTE - WIRED IN SERIES WITH SWITCH (NOT SHOWN) AND RESISTANCE FOR OPERATION AT HALF OR FULL SPEED.
HEATING ELEMENT - TWO COILS WIRED TO 3 POINT HEAT SWITCH (NOT SHOWN) FOR 100, 200 OR 300 WATTS AS DESIRED.
JAN. 1942

The cabinet closed



The cabinet open

fresh air is continually being drawn in and exhausted after passing over the damp material on the trays, the temperature of the oven is constant at 50° C. By closing the recirculating valve and the exhaust opening, recirculation of the air in the oven is effected, and temperatures as high as 80° C. can be obtained. This is the highest temperature at which the oven can be safely operated because of its wooden construction.

When an air-cleaner and suitable calcium chloride tubes are attached to the intake valve of the blower, fresh, clean and dry air is obtained which assures rapid and efficient drying in humid weather. If it is desirable to dry at a temperature of approximately 80° C., the intake valve is shut off, and the air in the drier recirculated. Specially constructed screen cages containing calcium chloride are inserted into the air ducts on each side of the trays to lower the resulting humidity in the drier. The same results can be obtained by spreading calcium chloride on one or two of the trays. This lowers the capacity of the drier, but is effective for small quantities of material.

We find the following procedure to be most effective for drying granulations: For the manufacture of approximately twenty-five of the most common types of tablets which could be made on a small scale, the drier is first operated for three-quarters of an hour with the intake valve and the exhaust aperture open, and with the heating element set for 300 watt resistance. This gives a rapid current of air over the damp material at a temperature of 50° C. After 45 minutes, the intake valve and the exhaust opening are then closed and the drier is operated for another three-quarters of an hour at a temperature of 75° C. This procedure gives dry, hard granules which run well in the tablet machine. The granulation still contains approximately 2 percent moisture which seems to facilitate compression.

SUMMARY

1. A drying cabinet is described, with detailed directions for its construction.

2. The main features of the cabinet are:

(a) The air can be cleaned and then dried before it is drawn into a blower where it is electrically heated and then forced over four trays holding the material being dried.

(b) This cleaned, dried and heated air can be exhausted after passing through the damp material, or it can be recirculated at a higher temperature.

(c) If the air is recirculated, the humidity in the cabinet can be reduced by inserting special calcium chloride cells into the circulation ducts of the cabinet.

(d) The trays are removable. Each of the four trays has a capacity for drying a granulation sufficient for two thousand medium-sized tablets.

(e) Temperatures as high as 80° C. can be attained when the air is recirculated. The standard operational temperature, when fresh air is being drawn in, is 50° C.

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2. Wood, Joseph R., "Tablet Making—Its History, Pharmacy and Practice," 1st ed., J. B. Lippincott Co., Philadelphia, 1906.

3. Cook, E. F., and LaWall, C. H., "Remington's Practice of Pharmacy," 8th ed., J. B. Lippincott Co., Philadelphia, 1936, pp. 1709.

PHARMACY'S FUNCTION IN THE WAR EFFORT

CARRYING out the language of a resolution adopted by the AMERICAN PHARMACEUTICAL ASSOCIATION at its Denver Meeting, the Committee on War Activities, with the approval of Council, has defined the function of pharmacy in the war effort as including the following:

(1) Supplying the necessary manpower to maintain the highest quality of pharmaceutical service in all branches of the armed forces. This includes manpower for the procurement, production and dispensing of drugs and health supplies which normally require the services of licensed graduate pharmacists and contemplates placing pharmacists in responsible posts where they can employ their training and experience for the benefit of the armed services, the U. S. Public Health Service and other governmental agencies engaged in the prosecution of the war.

(2) Maintaining the highest quality of pharmaceutical service for the civilian population. This contemplates the maintenance of an adequate number of pharmacies manned with sufficient licensed pharmacists to supply civilian requirements without unnecessary inconvenience to the public.

(3) Maintaining the highest standards of quality of drugs, medicines and health supplies and an adequate supply of these under all circumstances to protect the public health and welfare. To this end, the laboratory, library and research facilities of the AMERICAN PHARMACEUTICAL ASSOCIATION, the American Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy are available as well as the consultative services of their officers and staffs.

(4) Maintaining the highest standards of pharmaceutical education and licensure consistent with the professional services required of pharmacists to maintain military and civilian health, welfare and morale. To this end, the standards of the American Council of Pharmaceutical Education must be maintained; adequate recruitment of the ranks of pharmacy must be provided for by the adjustment of the educational program for the training of pharmacists to Selective Service needs and the adjustment of Selective Service regulations to permit an adequate number of pharmacy students to remain in training for war and post-war replacement needs.

(5) Maintaining high standards of enforcement of state pharmacy laws and regulations so that the quality of services and materials provided by the pharmacy or drugstore and other places where drugs are produced, dispensed and distributed shall not be impaired or permitted to deteriorate. To this end, adequate provisions must be made to maintain inspection staffs, transportation facilities, laboratory equipment, testing programs, secretarial and necessary supervisory services.

(6) Maintaining necessary relations with other professions engaged in public health services and providing medical care and with such agencies as the Army, Navy, U. S. Public Health Service, War Production Board, War Manpower Commission, Selective Service, Office of Price Administration, Office of Education, National Research Council, Office of Civilian Defense, American Red Cross and others. This will include extending professional pharmaceutical activities from national to state and local levels to the end that there may be a continuous interchange of information and proper liaison between the individual pharmacist and these agencies.

JUDGES PICK WINNERS IN PHARMACY WEEK WINDOW CONTEST

ROBERT J. RUTH TROPHY GOES TO SPEICHER-GRADY DRUG OF JOHNSTOWN, PA., FOR BEST 1942 DISPLAY

THE Speicher-Grady Drug Company, 344 Main St., Johnstown, Pa., has been awarded First Prize in the 1942 National Pharmacy Week Window Display Contest and will receive the Robert J. Ruth Trophy donated by the Federal Wholesale Druggists' Association. In the same competition, the Columbia University College of Pharmacy, New York, was awarded First Prize in the college division; and the Pennsylvania Pharmaceutical Association, Harrisburg, Pa., was awarded First Prize in the association division.

The window displays were judged by a special committee consisting of Charles J. Neun, of Morgan and Millard, Baltimore, Md.; Dr. John N. McDonald, Editor of the *American Professional Pharmacist*, Philadelphia; Dr. A. C. Taylor, President, D. C., Board of Pharmacy, Washington, D. C.; Glenn L. Sonnedecker, Pharmaceutical Editor of *Science Service*, Washington, D. C.; and Rowland Jones, Jr., of the National Association of Retail Druggists, Washington, D. C.

Judging the National Pharmacy Week Window Display Contest are, left to right: Charles J. Neun, of Baltimore; Dr. A. C. Taylor of Washington, D. C.; Charles R. Bohrer, Chairman of the National Pharmacy Week Committee of the AMERICAN PHARMACEUTICAL ASSOCIATION *Glenn Sonnedecker, of Washington, D. C.; and Dr. John N. McDonald, of Philadelphia.*

1942's Winning Windows

IN PEACE OR WAR YOUR PHARMACIST SERVES
THE DRUGGISTS PLEDGE
Help Win The War
Keep Healthy Stay on the Job
SOME STANDARD BOOKS
SOME OF THE WORKING TOOLS
The two enemies of good health are carelessness and neglect
See your Doctor at first sign of illness
Take his prescription to a competent Pharmacist

FIRST PRIZE DISPLAY TELLS AN EFFECTIVE STORY OF THE IMPORTANCE OF KEEPING WELL

FIRST prize in the National Pharmacy Week Window Display Contest for 1942 went to the Speicher-Grady Drug Company, of 344 Main Street, Johnstown, Pa., on the basis of the display shown above. The judges based the award on the display's professional character, arrangement of materials, and the value of the message it carries to the public. They made a wise choice.

The winning display not only dramatizes the professional services of the pharmacist most effectively, but it tells a timely story to the people of a nation at war. It stresses the importance of keeping well and on the job to help win the war, warns that the two enemies of good health are carelessness and neglect, and advises the public to see a doctor at the first sign of illness and to take his prescription to a competent pharmacist. It cites the shortage of physicians and pharmacists and the need for conserving drugs and medical supplies as further reasons for caring for one's health in order not to overburden the medical professions or to waste needed supplies.

The display itself shows open copies of the United States Pharmacopœia and the National Formulary, and an attractive arrangement of prescription containers, graduates, weights, mortar and pestle, and jars of crude drugs and chemicals.

Congratulations to Speicher-Grady on a well thought out message, effectively told.

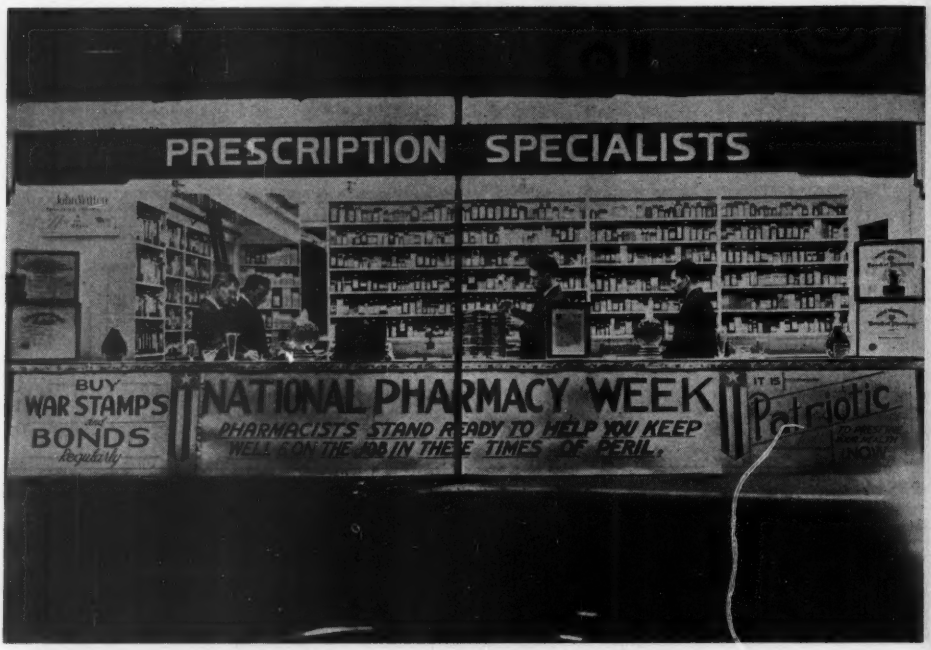
First Prize, College Division, Columbia University College of Pharmacy, New York, N. Y.

First Prize, Association Division, Pennsylvania Pharmaceutical Association, Harrisburg

National Pharmacy Week
EPHEDRINA
As the Mariner is guided by sun and stars while out at sea
So the Pharmacist guards Your Health, guided by the N.F. and U.S.P.
*NATIONAL FORMULARY
*UNITED STATES PHARMACOPOEIA

First Honorable Mention: Frank Nau, Portland, Ore.

Second Honorable Mention: Lippert Pharmacy, Milwaukee, Wis.



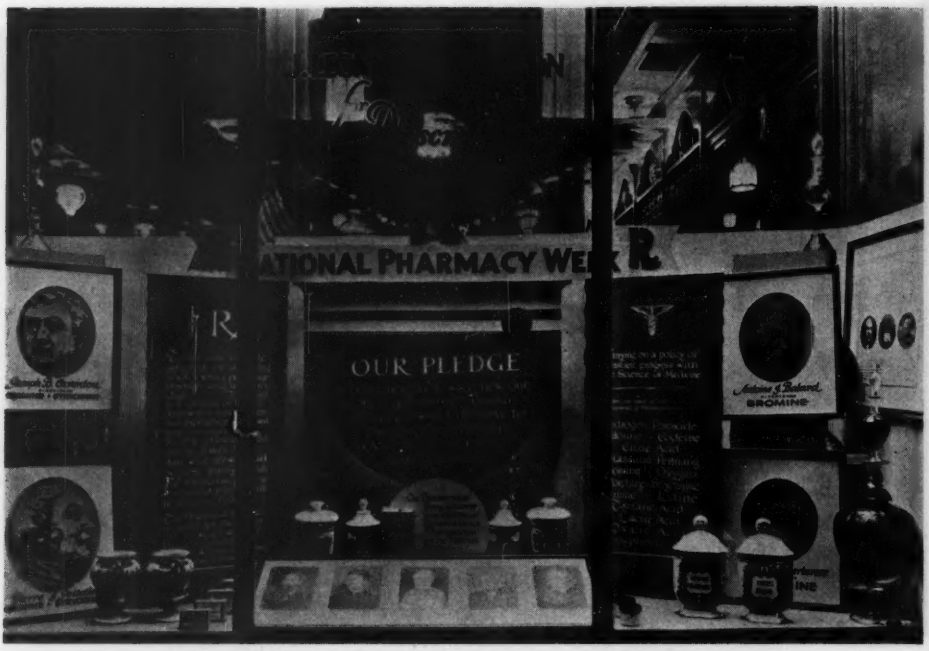
Third Honorable Mention: Clyde N. Roberts, Huntington, W. Va.

Fourth Honorable Mention: Gibbs Drug Store, Birmingham, Ala.

Fifth Honorable Mention: Mandel Drug Co., Cleveland, Ohio

Sixth Honorable Mention: Hook Drug Co., Indianapolis, Ind.

When Illness Threatens YOUR DOCTOR'S PRESCRIPTION IS YOUR SUREST PROTECTION!
The SYMBOL OF A PRESCRIPTION
A Document Of Importance To The Physician, Patient and Pharmacist
You Can Depend On Hook's
REGISTERED PHARMACIST
REGISTERED PHARMACIST
All Medicines Used In Your Prescriptions Are SCIENTIFICALLY CONTROLLED
A Competent, Registered Graduate PHARMACIST In Charge Of Our PRESCRIPTION DEPARTMENT

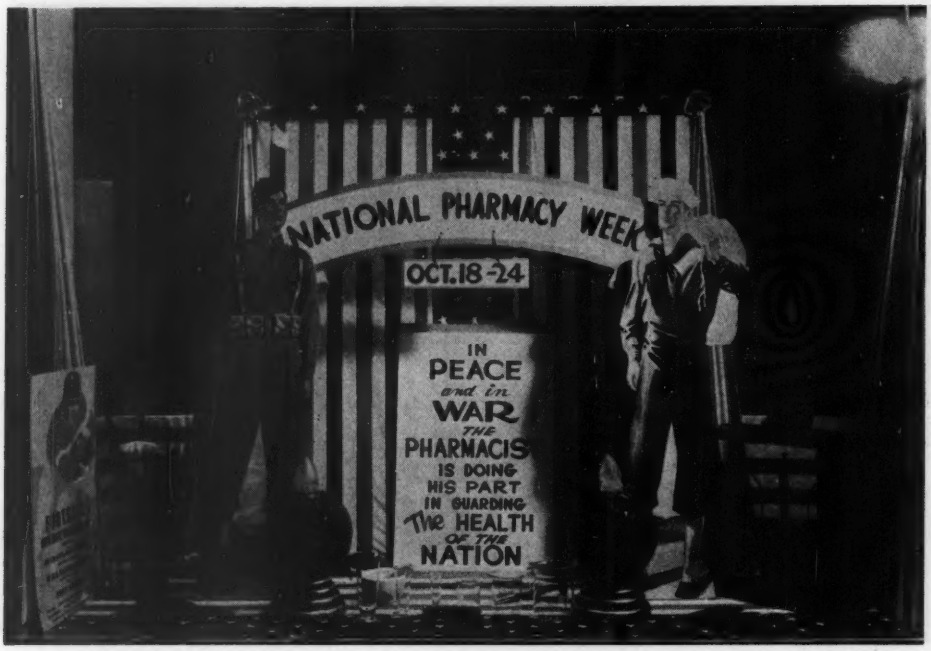


Seventh Honorable Mention: J. Leon Lascoff & Son, New York, N. Y.

Eighth Honorable Mention: Weber and Judd, Rochester, Minn.

Ninth Honorable Mention: John A. Klingstedt, Rockford, Ill.

Tenth Honorable Mention: Higger's Drugs, Washington, D. C



1st Honorable Mention, College Division: Louisville College of Pharmacy, Louisville, Ky.

2nd Honorable Mention, College Division: College of Pharmacy, State University of Iowa, Iowa City, Ia.

SECOND SUPPLEMENT
to the
NATIONAL FORMULARY
SEVENTH EDITION

I. PERMISSIVE REPLACEMENTS

A. Shortage of glycerin, as a result of the war, makes necessary the following permissive revisions of National Formulary preparations.

Elixir Ferri et Strychninæ

Until further notice, glycerin may be omitted from Elixir of Iron and Strychnine. (See First Supplement to N. F. VII, p. 3.)

Elixir Ferri et Strychninæ Phosphatum

Until further notice, glycerin may be omitted from Elixir of Iron and Strychnine Phosphates. (See First Supplement to N. F. VII, p. 4.)

Elixir Pepsini

Until further notice, the following formula and directions for preparation may be used in the manufacture of Elixir of Pepsin. The rest of the monograph remains as in N. F. VII, pp. 131–132.

ELIXIR PEPSINI
Elixir of Pepsin

Pepsin	35 Gm.
Citric Acid	12 Gm.
Exsiccated Sodium Phosphate	13 Gm.
Sucrose	45 Gm.
Distilled Water	300 cc.
Glycerin	120 cc.
Aromatic Elixir, a sufficient quantity, To make	1000 cc.

Dissolve the citric acid, the sucrose, and the exsiccated sodium phosphate in the cold distilled water, add the pepsin, and allow the mixture to stand in a cool place until the pepsin is thoroughly softened, and then stir very gently until dissolved. Add the glycerin and sufficient aromatic elixir to make the product measure 1000 cc.; mix gently, and filter, if necessary, until the product is clear.

Elixir Pepsini Compositum

Until further notice, the following formula and directions may be used in the manufacture of Compound Elixir of Pepsin. The rest of the monograph remains as in N. F. VII, p. 133.

ELIXIR PEPSINI COMPOSITUM
Compound Elixir of Pepsin

Pepsin	35 Gm.
Lactic Acid	1 cc.
Glycerin	120 cc.
Sucrose	70 Gm.
Alcohol	200 cc.
Oil of Orange	2 cc.
Solution of Amaranth	14 cc.
Distilled Water, a sufficient quantity, To make	1000 cc.

Add the pepsin to 500 cc. of cold distilled water containing the lactic acid, and allow the mixture to stand in a cool place until the pepsin is thoroughly softened; then stir very gently until dissolved, and add the glycerin and the sucrose. Dissolve the oil of orange in the alcohol, and gradually add this solution to the pepsin solution with gentle stirring. Then add the solution of amaranth and sufficient distilled water to make the product measure 1000 cc., and filter until the product is clear.

Elixir Pepsini et Rennini

Until further notice, the following formula and directions may be used in the manufacture of Elixir of Pepsin and Rennin. The rest of the monograph remains as in N. F. VII, p. 134.

ELIXIR PEPSINI ET RENNINI
Elixir of Pepsin and Rennin

Pepsin	45 Gm.
Rennin	18 Gm.
Glycerin	120 cc.
Sucrose	17 Gm.
Alcohol	165 cc.
Tincture of Sweet Orange Peel	50 cc.
Oil of Myristica	0.1 cc.
Distilled Water, a sufficient quantity, To make	1000 cc.

Add the pepsin and the rennin to 500 cc. of cold distilled water, and allow the mixture to stand in a cool place until the pepsin is thoroughly softened; then stir very gently until the solids are dissolved, and add the glycerin and the sucrose. Dissolve the tincture of sweet orange peel and oil of myristica in the alcohol, and gradually add to the aqueous solution with gentle stirring. Then add sufficient distilled water to make the product measure 1000 cc., mix gently, and filter until the product is clear.

Elixir Terpini Hydratis

Until further notice, the following monograph may be used in place of the monograph in N. F. VII, pp. 140–141.

ELIXIR TERPINI HYDRATIS
Elixir of Terpin Hydrate

Elix. Terpin. Hyd.

Terpin Hydrate	17 Gm.
Tincture of Sweet Orange Peel	20 cc.
Spirit of Benzaldehyde	5 cc.
Alcohol	475 cc.
Glycerin	200 cc.
Sucrose	185 Gm.
Distilled Water, a sufficient quantity, To make	1000 cc.

Dissolve the terpin hydrate in the alcohol; add successively the tincture, the spirit, the glycerin, and the sucrose previously dissolved in 100 cc. of distilled water. Add sufficient distilled water to make the product measure 1000 cc.; mix well, and filter until the product is clear.

Storage—Preserve Elixir of Terpin Hydrate in tight containers at a temperature above 7° C.
Alcohol content—From 43 to 47 per cent, by volume, of C_2H_5OH.
Preparation—Elixir Terpini Hydratis et Codeinæ.

AVERAGE DOSE—Metric, 4 cc.; Apothecaries, 1 fluidrachm.

One average metric dose contains 68 mg. of Terpin Hydrate.

Elixir Terpini Hydratis et Codeinæ

Change the alcohol content statement to read as follows:
Alcohol content—From 43 to 47 per cent, by volume, of C_2H_5OH.

Liquor Aromaticus Alkalinus

Until further notice, the glycerin content of Alkaline Aromatic Solution may be reduced to 50 cc. per liter.

Mistura Rhei et Sodæ

Until further notice, the glycerin content of Mixture of Rhubarb and Soda may be reduced to 160 cc. per liter.

Syrupus Ammonii Hypophosphitis

Until further notice, the following monograph may be used in place of the monograph in N. F. VII, p. 401.

SYRUPUS AMMONII HYPOPHOSPHITIS
Syrup of Ammonium Hypophosphite

Syr. Ammon. Hypophos.

Ammonium Hypophosphite	35 Gm.
Hypophosphorous Acid	1 cc.
Distilled Water	100 cc.
Glycerin	50 cc.
Syrup, a sufficient quantity	
To make	1000 cc.

Dissolve the ammonium hypophosphite in the distilled water; add the hypophosphorous acid, filter, then add the glycerin and sufficient syrup to make the product measure 1000 cc., and mix well.

Storage—Preserve Syrup of Ammonium Hypophosphite in tight containers, and avoid excessive heat.

AVERAGE DOSE—Metric, 4 cc.; Apothecaries, 1 fluidrachm.

One average metric dose contains 0.14 Gm. of Ammonium Hypophosphite.

Syrupus Calcii Lactophosphatis

Until further notice, the following monograph may be used in place of the monograph in N. F. VII, pp. 403–404.

SYRUPUS CALCII LACTOPHOSPHATIS
Syrup of Calcium Lactophosphate

Syr. Calc. Lactophos.

Precipitated Calcium Carbonate	25 Gm.
Lactic Acid	60 cc.
Phosphoric Acid	36 cc.
Sucrose	650 Gm.
Glycerin	50 cc.
Distilled Water, a sufficient quantity,	
To make	1000 cc.

Add distilled water to the precipitated calcium carbonate to make a paste; then add the lactic acid, mixed with 100 cc. of distilled water, gradually and with constant stirring; to the magma thus formed, add the phosphoric acid, previously diluted with 50 cc. of distilled water, and stir until the magma is dissolved. Add 150 cc. of distilled water, filter, and dissolve the sucrose in the filtrate by agitation; then add the glycerin and sufficient distilled water to make the product measure 1000 cc., and strain.

Storage—Preserve Syrup of Calcium Lactophosphate in tight containers, and avoid excessive heat. *The Syrup should not be dispensed if brownish in color.*

AVERAGE DOSE—Metric, 10 cc.; Apothecaries, $2^1/_2$ fluidrachms.

One average metric dose contains about 0.1 Gm. of Calcium, equivalent to 0.77 Gm. of Calcium Lactate, or 0.63 Gm. of Calcium Acid Phosphate, or 0.258 Gm. of Calcium Phosphate.

Syrupus Hypophosphitum

Until further notice, the following monograph may be used in place of the monograph in N. F. VII, p. 407.

SYRUPUS HYPOPHOSPHITUM
Syrup of Hypophosphites

Syr. Hypophos.

Calcium Hypophosphite	35 Gm.
Potassium Hypophosphite	18 Gm.
Sodium Hypophosphite	18 Gm.
Hypophosphorous Acid	1 cc.
Glycerin	50 cc.
Sucrose	600 Gm.
Distilled Water, a sufficient quantity, To make	1000 cc.

Triturate the hypophosphites with 500 cc. of distilled water until they are dissolved. Add the hypophosphorous acid, filter the liquid, and pass sufficient distilled water through the filter to make the filtrate measure 540 cc. To this add the glycerin and sucrose, dissolve the latter by agitation without heat, and add sufficient distilled water to make the product measure 1000 cc. Strain, if necessary.

Storage—Preserve Syrup of Hypophosphites in tight containers, and avoid excessive heat. *The Syrup should not be dispensed if brownish in color.*

AVERAGE DOSE—Metric, 8 cc.; Apothecaries, 2 fluidrachms.

One average metric dose contains 0.28 Gm. of Calcium Hypophosphite, and about 0.14 Gm. each of Potassium Hypophosphite and Sodium Hypophosphite.

Syrupus Hypophosphitum Compositus

Until further notice, the following monograph may be used in place of the monograph in N. F. VII, p. 408.

SYRUPUS HYPOPHOSPHITUM COMPOSITUS
Compound Syrup of Hypophosphites

Syr. Hypophos. Comp.

Calcium Hypophosphite	35.0 Gm.
Potassium Hypophosphite	17.5 Gm.
Sodium Hypophosphite	17.5 Gm.
Ferric Hypophosphite	2.2 Gm.
Manganese Hypophosphite	2.2 Gm.
Strychnine	0.1 Gm.
Sodium Citrate	3.7 Gm.
Hypophosphorous Acid	5.0 cc.
Sucrose	700 Gm.
Glycerin	50 cc.
Distilled Water, a sufficient quantity, To make	1000 cc.

Mix the ferric and the manganese hypophosphites with the sodium citrate, add 30 cc. of distilled water, warm on a water bath, and stir

until a clear solution is obtained. Dissolve the calcium, potassium, and sodium hypophosphites in 400 cc. of distilled water, to which 2 cc. of hypophosphorous acid has been added; then dissolve the strychnine in 30 cc. of distilled water and the glycerin, with the aid of 3 cc. of hypophosphorous acid; mix the solutions and dissolve the sucrose in them by agitation. Add sufficient distilled water to make the product measure 1000 cc., and filter.

Storage—Preserve Compound Syrup of Hypophosphites in tight containers, protected from light, and avoid excessive heat. *The Syrup should not be dispensed if brownish in color.*

AVERAGE DOSE—Metric, 8 cc.; Apothecaries, 2 fluidrachms.

One average metric dose contains 0.28 Gm. of Calcium Hypophosphite, 0.14 Gm. each of Potassium Hypophosphite and Sodium Hypophosphite, about 18 mg. each of Ferric Hypophosphite and Manganese Hypophosphite, and 0.8 mg. of Strychnine.

Syrupus Pini Albæ Compositus

Until further notice, glycerin may be omitted from, and the quantity of sucrose increased to 700 Gm. in, the formula for Compound Syrup of White Pine.

B. Shortage of Rose, as a result of the war, makes necessary the following permissive revision in the monograph of Pills of Aloe and Mastic:

Pilulæ Aloes et Mastiches

Until further notice, Rose may be omitted from the formula for Pills of Aloe and Mastic.

II. REVISIONS OF MONOGRAPHS

The following revision of monographs in N. F. VII are effective as of March 15, 1943:

FLUIDEXTRACTUM VIBURNI OPULI, page 196—Change the average dose statement in this monograph, page 196, to read as follows:

AVERAGE DOSE—Metric, 4 cc.; Apothecaries, 60 minims.

OLEORESINA CAPSICI, page 296—Delete the entire paragraph headed **"Test for quality"** in this monograph.

PLANTAGINIS SEMEN, page 335—Change the first paragraph in this monograph to read as follows:

Plantago Seed is the cleaned, dried, ripe seed of *Plantago Psyllium* Linné, or of *Plantago indica* Linné (*Plantago arenaria* Waldstein et Kitaibel), known in commerce as Spanish or French Psyllium Seed; or of *Plantago ovata* Forskal, known in commerce as Blond Psyllium or Indian Plantago Seed (Fam. *Plantaginaceæ*).

Throughout the balance of the monograph change *Plantago arenaria* or *P. arenaria* to *Plantago indica* and *P. indica* respectively, or paste the following in appropriate places as each appears in your copy:

P. indica *P. indica* *Plantago indica*

TINCTURA CAPSICI, page 445—Delete the entire paragraph headed **"Test for quality"** in this monograph.

VIBURNUM OPULUS, page 481—Change the average dose statement in this monograph, page 481, to read as follows:

AVERAGE DOSE—Metric, 4 Gm.; Apothecaries, 60 grains.

ZEA, page 484—Change the titles for this drug to read as follows:

ZEA

Zea

Corn-silk

III. ADDITION TO N. F. VII

The following monograph for a reagent chemical is admitted to N. F. VII as of March 15, 1943:

Sodium Cyanide, NaCN—White granules or fused fragments. Freely soluble in water, slightly soluble in alcohol.

Caution—Due to the extremely toxic nature of this reagent and the gas evolved from it when it is treated with acids, all tests must be conducted in a hood provided with a strong draft, taking care to avoid the inhalation of the fumes. Pipets must not be used to measure its solutions.

Assay—Weigh accurately about 1 Gm. of the sample and dissolve it in 30 cc. of distilled water. Add 3 drops of potassium iodide T.S. and titrate with tenth-normal silver nitrate to a slight permanent turbidity. Each cc. of tenth-normal silver nitrate is equivalent to 0.0098 Gm. of NaCN. Not less than 95 per cent of NaCN must be found.

Chloride—Measure 20 cc. of a solution of NaCN (1 in 20) and pour into a long-necked flask. Add 10 cc. of distilled water and 25 cc. of diluted sulfuric acid and evaporate, under a hood with a strong draft, to half of the original volume. Replace the water lost and evaporate again to half of the original volume. Cool, filter, dilute to 50 cc. with distilled water, and add 2 cc. of nitric acid and 1 cc. of tenth-normal silver nitrate. The turbidity should not be greater than that produced by 0.33 mg. of sodium chloride dissolved in 50 cc. of distilled water when treated with the nitric acid and silver nitrate in the same manner.

Ferrocyanide—To 20 cc. of a solution of sodium cyanide (1 in 20) add 3 cc. of hydrochloric acid and a drop of freshly prepared ferric chloride T.S. No blue or green color should develop within one hour.

Sulfate—To 20 cc. of a solution of sodium cyanide (1 in 20) add 2.5 cc. of hydrochloric acid and 2 cc. of barium chloride T.S. At the end of 10 minutes, if turbidity is produced, it is not greater than that produced by a control made with 0.1 mg. of SO_4 (0.02 per cent).

Sulfide—To 20 cc. of a solution of sodium cyanide (1 in 20) add 3 drops of a solution made by adding 10 per cent sodium hydroxide solution to 10 per cent lead acetate solution until the precipitate first formed redissolves. If a color is produced, it is not darker than that produced by the same quantity of alkaline lead solution in 20 cc. of distilled water containing 0.03 mg. of sulfide ion.

Thiocyanate—To 20 cc. of a solution of sodium cyanide (1 in 20) add, under a hood, 4 cc. of hydrochloric acid and 4 drops of ferric ammonium acetate T.S. The color of the solution is not darker than a blank.

Heavy Metals—Add 10 cc. of hydrogen sulfide T.S. to a solution of sodium cyanide (1 in 30). No darkening of the solution occurs nor does a dark color appear upon adding 7 cc. of diluted hydrochloric acid to the solution.

IV. ERRATA

Make the following corrections in the N. F. VII text:

BENZALDEHYDUM, page 62—In the last line of the first paragraph in the section headed **"Assay"** change "Bromothymol" to "Bromophenol" or paste the following paragraph over the paragraph as it appears in your copy.

Assay—Accurately weigh about 1 cc. of Benzaldehyde contained in a tared 250 cc. flask, add 25 cc. of alcohol and 50 cc. of a solution prepared by dissolving 34.7 Gm. of hydroxylamine hydrochloride in 160 cc. of water and diluting the solution to 1000 cc., with alcohol. Titrate the liberated hydrochloric acid with normal sodium hydroxide using 1 cc. of bromophenol blue T.S. as the indicator.

CREOSOTUM, page 105—In the first line of the paragraph headed **"Miscibility"** change the first clause to read, "Creosote is *slightly* soluble in water, . . .," or paste the following paragraph over the paragraph as it appears in your copy.

Miscibility—Creosote is slightly soluble in water, but is miscible with alcohol, ether, and with fixed or volatile oils.

ELIXIR BROMIDORUM TRIUM, page 117—Change the last sentence in the assay to read,

Each cc. of tenth-normal silver nitrate is equivalent to 0.01059 Gm. of the total bromides.

FERRI PYROPHOSPHAS SOLUBILIS, page 165—In the second line of the paragraph headed **"Assay"** change 5 cc. to 10 cc., or paste the following paragraph over the paragraph as it appears in your copy.

Assay—Dissolve about 1 Gm. of Soluble Ferric Pyrophosphate, accurately weighed, in 25 cc. of distilled water and 10 cc. of hydrochloric acid in a glass-stoppered flask; add 4 Gm. of potassium iodide, securely stopper the flask, and allow the mixture to stand 15 minutes; add 50 cc. of distilled water, and titrate the liberated iodine with tenth-normal sodium thiosulfate, using starch T.S. as the indicator. Each cc. of tenth-normal sodium thiosulfate is equivalent to 0.005585 Gm. of Fe.

LIQUOR FERRI CHLORIDI, page 246—Change the paragraph headed **"Specific Gravity"** to read as follows:

Specific Gravity—The specific gravity of Solution of Ferric Chloride is from 1.29 to 1.35 at 25° C.

POPULI GEMMA, page 338—In the second line of the first paragraph insert the word "Populus" before the specific name "Tacamahacca," or paste the following paragraph over the paragraph as it appears in your copy:

Poplar Bud is the air-dried, closed, winter leaf bud of *Populus candicans* Aiton, known in commerce as Balm of Gilead Buds, or of *Populus Tacamahacca* Miller (*Populus balsamifera* Linné), known in commerce as Balsam Poplar Buds (Fam. *Salicaceæ*).

PULVIS IPECACUANHÆ ET OPII, page 346—Change the second line of the paragraph headed **"Description"** to read, ". . . more or less cone-shaped, colorless fragments up to 400 microns in length . . .," or paste the following paragraph over the paragraph as it appears in your copy.

Description—A very pale brown powder, exhibiting coarse, angular, frequently more or less cone-shaped colorless fragments up to 400 microns in length, very slowly soluble in water and in chloral hydrate T.S., and polarizing light with a strong display of color (*fragments of lactose*); other elements of identification are the tissues of ipecac and of the capsules of the opium poppy described in the U. S. Pharmacopœia.

SODII ACETAS, page 375—In the first line of the paragraph headed **"Heavy metals"** delete "tenth-" or paste the following paragraph over the paragraph as it appears in your copy.

Heavy metals—Dissolve 1 Gm. of Sodium Acetate in 1 cc. of normal hydrochloric acid and enough distilled water to make 25 cc. The heavy metals limit of Sodium Acetate is 10 parts per million.

SYRUPUS THYMI, page 413—Change the alcohol content statement to read as follows:

Alcohol content—From 11 to 13 per cent, by volume, of C_2H_5OH.

VIBURNUM PRUNIFOLIUM, page 482—Change the last two lines in the paragraph headed **"Powdered Viburnum Prunifolium"** to read as follows:

or plano-convex, up to 23 microns in diameter or length; few fragments having wood fibers with lignified walls, some with bordered pits, and with lumina of irregular width.

This Second Supplement to the National Formulary, Seventh Edition, is issued by action of the Committee on National Formulary, and with the approval of the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION. It is effective from March 15, 1943, until further notice.

JUSTIN L. POWERS, *Chairman*
Committee on National Formulary
American Pharmaceutical Association

Washington, D. C.
March 15, 1943

Reprints of the Second Supplement to the National Formulary, Seventh Edition, may be obtained free of charge by sending a self-addressed, stamped envelope to:

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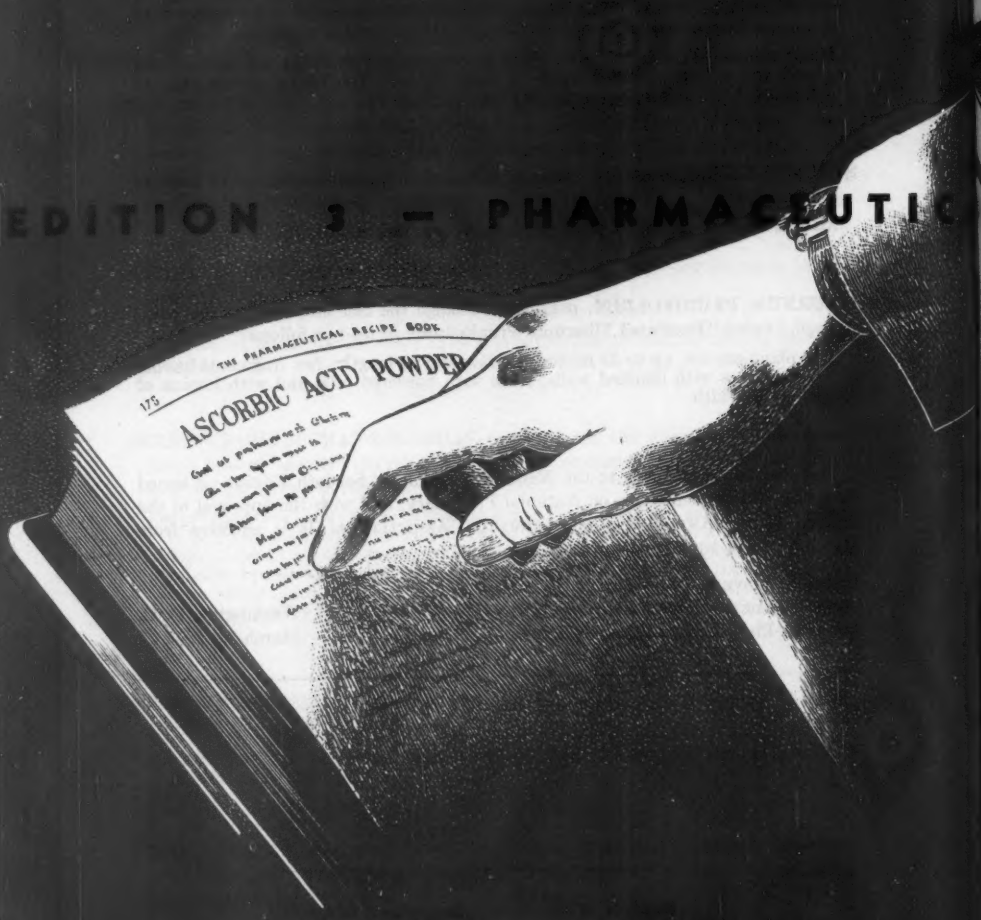

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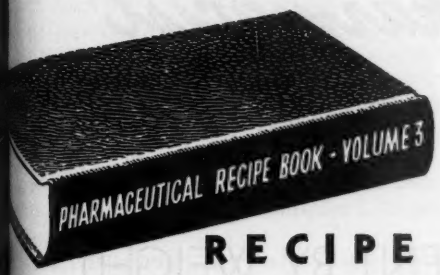

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THE IMPORTANCE OF ALCOHOL 70 PERCENT BY WEIGHT

by SISTER MARY JOHN, R.S.M., B.S., R.N.
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A REVIEW OF RECENT STUDIES EMPHASIZES THE NECESSITY OF PREPARING SOLUTIONS OF ALCOHOL BY WEIGHT, NOT BY VOLUME, IF THEY ARE TO BE USED AS A SKIN ANTISEPTIC

ALCOHOL is a very popular cutaneous antiseptic. When it is properly prepared it is definitely bactericidal. Its use is international, not only in dressing wounds and in preoperative preparation of the skin, but for vaccinations and hypodermic injections.

I had prepared alcohol solutions by volume for years without any thought of wrong doing and it was not until a member of our staff, who had been trained at Harvard, constantly insisted that alcohol solutions should be prepared by weight, that I decided to investigate the matter. I found that such research workers as Walter[1] at Harvard and Price[2] at Johns Hopkins had amply demonstrated that an alcohol solution 70 percent by weight is the most bactericidal solution, and that one 70 percent by volume is almost useless.

The fact that the hospital pharmacist prepares or supervises the preparation of alcohol used in surgical work, demands that he be vitally concerned in protecting the hospital's most prized possession—the patient. The following résumé should be of especial interest:

1. In 1881, Koch found dilute alcohol a weak bactericide and absolute alcohol as indifferent as sterile water against anthrax spores.

2. In 1888, Furbinger recommended alcohol in preoperative preparation of the hands, to remove fatty materials from the skin and permit better contact between cutaneous bacteria and the germicide to follow.

3. Kronig (1894), unable to kill *Staphylococcus aureus in vitro* with 95 percent alcohol, suggested that the apparent effectiveness of alcohol in surgical procedures might be due to dehydrating and astringent action, the bacteria being held in the shrunken skin.

4. Ahfeld (1896) concluded that it is necessary for microorganisms to be wet for alcohol to be most effective.

5. Epstein (1897), in the most carefully conducted experiments up to that time, using various sorts of organisms dried on bits of silk thread, found that of the solutions tested, (25, 40, 50, 80 and 90 percent), the most germicidal was the 50 percent solution. The fact that no tests were recorded between 50 and 80 percent possibly delayed a greater knowledge of the germicidal effect of alcohol.

6. Harrington (1903) demonstrated convincingly that microorganisms are more susceptible to alcohol when moist than when dry. He found 60 to 70 percent the most effective.

Presented before the Sub-Section on Hospital Pharmacy, A. PH. A., Denver meeting, 1942.

7. Beyer (1911), in a careful study that has not received due recognition, pointed out the important difference between concentrations by weight and concentrations by volume and showed the great superiority of a solution of alcohol exactly 70 percent by weight. He claimed that a 70 percent solution is thirty times as powerful as a 60 percent and forty times as powerful as an 80 percent solution, and that solutions less than 50 or over 80 percent (by weight) are of no practical value in disinfection.

8. Frey (1912) attempted to explain Beyers' results on biochemical grounds, calling attention to the fact that the action of alcohol on albumins is maximal when its concentration is 70 percent by weight.

9. Bills (1926), in a study of fat solvents, reported ethyl alcohol immiscible with cod-liver oil, linseed oil, olive oil, butter and coconut fats.

10. Price (1938), Baltimore, reported that he was unable to recover viable organisms from alcohol in which arms and hands had been washed. He decided that the fat solvent action of alcohol was not its most valuable attribute, since petrolatum, olive oil and hydrous wool fat were practicaly insoluble in ethyl alcohol.

The fats tested by Price are similar to those found on the surface of skin: hydrocarbons, oleins and cholesterol. This throws doubt on the usual teaching that alcohol acts chiefly as a detergent, dissolving grease and oils on the skin.

The foregoing summary indicates a definite lack of agreement in regard to the bactericidal range of different percentage strengths and the nature of its action on the skin. This lack of agreement is reflected in surgical technique in our best hospitals today.

In the same year, Doctor Phillip Price used a method whereby the effect of alcohol on the bacterial flora of the skin could be determined quantitatively. In each of these experiments the following procedure was used:

1. The hands and arms were scrubbed repeatedly in sterile water for one minute and a bacterial count taken from the water in which the hands were washed.

2. The hands and arms were then plunged into alcohol, care taken to avoid friction.

3. At the end of one minute, the germicidal action of the alcohol was terminated by plunging the hands and arms into sterile water.

4. Scrubbing was then resumed in a second basin of sterile water and a bacterial count made to ascertain the number of organisms remaining.

From these determinations the effect of the alcohol could be deduced with a fair degree of precision. A summary of the bacterial counts, after one minute of scrubbing in sterile water, revealed the following:

Basin No.	1—	Bacterial Count	1,640,450
" "	2—	" "	841,750
" "	3—	" "	658,500
" "	4—	" "	436,800
" "	5—	" "	403,760
" "	6—	" "	348,840
" "	7—	" "	338,580

At this point, hands and arms were washed in alcohol for one minute without friction and the bacterial count dropped to 146,260, showing a destruction of 192,320. This showed that each minute the hands are kept in alcohol is equal to more than four minutes of scrubbing. The first 1,640,450 washed off the first minute were the foreign or transient bacteria, the residual bacteria being removed more slowly.

The effect of different strengths of alcohol on the skin may be seen in Price's experiments as shown in Table A.

This study shows that alcohol 70 percent by weight, with three minutes' scrubbing with gauze, destroyed 1,060,000 organisms, while with 78 percent and one minute in alcohol without friction, only 32,000 organisms were destroyed.

A quantitative study of the germicidal power of alcohol *in vitro* revealed the following:

1. Alcohol destroys vegetative bacteria in an aqueous suspension at a constantly diminishing rate, after a sharp immediate reduction.

TABLE A

Experiment No.	Alcohol Solution Used, Wt. %	Temp. of Alcohol, °C.	Length of Time Used, Min.	Friction	Total Organisms Before Use	Total Organisms After Use
1	50.0	25.5	5	None	1,295,000	660,000
2	60.0	24.5	3	None	4,100,000	2,925,000
3	65.5	25.0	1	None	2,700,000	1,587,000
4	69.0	25.0	3	None	1,400,000	164,000
5	69.5	25.0	1	None	2,227,000	1,072,000
6	70.0	25.0	3	Gauze	1,060,000	29,000
7	78.5	25.0	1	None	550,000	518,000

2. Alcohol 70 percent by weight is the most rapidly bactericidal solution.

3. Susceptibility to alcohol varies with different kinds of bacteria. The 70 percent solution seemed to be toxic to *Staphylococcus aureus* in particular.

METHOD OF PREPARATION

Preparation of solutions of alcohol is not simple, due to three variables: (1) specific gravity, (2) temperature expansion, (3) reaction contraction. Water expands only slightly by heating and the relation between volume and weight varies slightly by variations in temperature. Alcohol on the contrary, is lighter than water. One cubic centimeter weighs less than 1 Gm., and because alcohol is very expansive, 1 cc. of warm alcohol weighs less than 1 cc. of cold alcohol. Preparation of exact concentrations of alcohol by volume is further complicated by the fact that 1 cc. of water plus 1 cc. of alcohol is less than 2 cc., for a contraction takes place with production of heat, a contraction which becomes greater as the solution cools. It is easy to see how the bacterial action of any given solution of alcohol prepared by volume would be unpredictable even at a standard temperature. Seventy percent alcohol by weight is prepared by combining 700 Gm. of chemically pure, 100 percent alcohol, and 300 Gm. of distilled water, and is a uniform preparation having a definite bactericidal effect.

In operating rooms and physicians' offices, where time or facilities may be lacking for such measurements a 70 percent by weight can be approximated by taking 810 cc. of commercial (95 percent) alcohol at operating room temperature (25° C., 77° F.) and adding cold distilled water to bring the total volume of the solution to 1000 cc.

As alcohol has so narrow a range of effective concentration, an alcoholometer, preferably with a thermometer inclosed, is necessary for the Pharmacy and another one for the Surgery. The pharmacist should instruct the surgery supervisor how to test and restore the use of filtered alcohol to 70 percent by weight. At 70 percent by weight the specific gravity is 0.865, with operating room temperature 25° C., 77° F. If the specific gravity is above 0.865, add 95 percent alcohol; if below, add distilled water until the specific gravity is 0.865.

According to Price, an evaporation of 50 percent, will change 70 percent by weight to 62 percent, at which concentration it is ineffective as a germicide, so it should be kept covered when not in use. The vapor pressure of 95 percent alcohol is heavier than water and it vaporizes more readily. He maintains that chemically pure alcohol, if uncovered, will absorb moisture until it reaches 95 per cent alcohol and that 95 per cent alcohol will remain 95 per cent upon exposure.

Used alcohol, filtered and brought up to 70 percent by weight, has been found satisfactory for subsequent use by the Director of Harvard Research Medical School Laboratories. He also recommends the use of 70 percent by weight alcohol for the preparation of the skin for operation, and maintains that the alcohol should not be too quickly followed with ether as time is the important factor in disinfection. He, like Price, advises that in order to obtain the full germicidal effect of alcohol in preparing the skin for operation, the following procedure should be used:

Scrub arms and hands with a brush, soap and water for seven minutes; dry with sterile towel; rinse in 95 percent alcohol, which has little germicidal effect, but removes water and tends to prevent the weakening effect of evaporation on 70 percent by weight. The skin is then scrubbed with a sterile sponge in a large basinful of 70 percent alcohol by weight, for three full minutes, using friction which greatly increases its germicidal effect.

This procedure is not strictly a pharmaceutical one, but if the hospital pharmacist is to protect the patient and dispense potent germicides, he must be familiar with their mode of application in order to control them. He will find, even in some of our most elaborate surgical pavilions, a false sense of security in regard to aseptic preparation of the skin, produced by a routine application of antiseptic dyes to the field of operation.

REFERENCES

1. Walter, Carl, M.D., Harvard University Medical School Research Laboratories and Hospitals.
2. Price, Phillip B., M.D., "Ethyl Alcohol as a Germicide," *Archives of Surgery* (American Medical Association), 38 (Jan.–June, 1939), 528–542.

AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

CONSTITUTION AND BY-LAWS

CONSTITUTION

ARTICLE I. *Name:* The name of this organization shall be the American Society of Hospital Pharmacists.

ARTICLE II. *Objectives:* The objectives of the Society shall be to improve and extend the usefulness of the hospital pharmacist to the institution he serves, to the members of the other health professions with whom he is associated, and to the profession of pharmacy by:

1—Establishing minimum standards of pharmaceutical service in hospitals, in order to provide benefits and protection for the public health which it will receive by the skill and art of qualified hospital pharmacists; and to insure for the future an adequate supply of such qualified hospital pharmacists by providing a standardized hospital training for four-year pharmacy graduates who have elected a specialized hospital pharmacy course.

2—Providing for interchange of information among pharmacists by encouraging initative in the development of new pharmaceutical techniques, and by maintaining a close pharmaceutical contact between hospital pharmacists and those engaged in general pharmaceutical practice.

3—Aiding the medical profession in extending the economic and rational use of medicaments.

ARTICLE III. *Membership:*

Section 1. (*a*) *Active members* of this Society shall be registered pharmacists in good professional standing, who are members of the AMERICAN PHARMACEUTICAL ASSOCIATION and whose practice has been essentially connected with hospitals, clinics, and dispensaries for a period of one year.

(*b*) *Honorary members* may be elected from among the individuals who are especially interested in hospital pharmacy but are not actively engaged in institutional practice. Honorary members shall not pay dues, nor shall they be eligible to vote or to hold office.

Section 2. Applications for membership shall be received by the Committee on Membership and shall be acted upon by the Executive Committee on the recommendation of said Committee on Membership.

ARTICLE IV. *Officers:* The officers of this Society shall be a Chairman, a Vice-Chairman who shall be Chairman-elect, a Secretary, and a Treasurer, all of whom shall be elected annually, and none of whom, with the exception of the Secretary and Treasurer may hold office for more than two consecutive terms.

ARTICLE V. *Amendments:* Every proposition to alter or amend this Constitution shall be made by two members at an annual meeting of the Society and shall be voted upon by ballot of the members of the Society by mail at least one month subsequent to the annual meeting. All ballots to be eligible for voting must be post-marked within thirty days of the date of the ballot.

BY-LAWS

CHAPTER I. *Election of Officers:* At the first session of each annual meeting of this Society, the Chairman shall appoint a committee of three members who shall submit nominations of one individual for each office of the Society for the ensuing year. The Committee shall present its nominations at the final session of the annual meeting at which time additional nominations may be made from the floor. Those present entitled to vote shall vote, a majority of such votes cast shall constitute election and the officers shall be installed at once.

CHAPTER II. *Duties of Officers:*

Article 1—*Chairman and Vice-Chairman.* The Chairman, or in his absence, the Vice-Chairman, shall preside at all meetings. He will appoint all committees not otherwise provided for and shall be ex-officio member of all committees. He shall prepare a Chairman's address to be presented at the first session of the annual meeting of the Society following his installation.

Article 2—*Secretary.* The Secretary shall keep minutes of the sessions of the Society and maintain a roll of its members. He shall notify individuals of their appointment to committees, notify members of the time and place of all meetings, and conduct the correspondence of the Society. He shall present a written report of his work to the annual meeting of the Society. He shall collect the dues of the members.

Article 3—*Treasurer.* The Treasurer shall receive and keep account of all moneys received by the Society in the form of dues or remittances and shall disburse them at the direction of the Executive Committee.

CHAPTER III. *Executive Committee:* The Executive Committee shall consist of the Officers of the Society and the Chairman of each standing committee. It shall meet on the call of the Chairman of

the Society, shall have supervision over the expenditure of all funds of the Society, and shall be empowered to act for the Society during the period between annual meetings.

CHAPTER IV. *Finances:* The necessary funds for carrying on the work of this Society shall be raised by the collection of membership dues of $3.00 a year from each active member.

CHAPTER V. *Standing Committees:* There shall be three standing committees of the Society: each consisting of three members appointed by the Chairman of the Society, with the approval of the Executive Committee.

Article 1—*Program Committee.* The Program Committee shall arrange the program, solicit papers and prepare suitable subjects for discussion at annual meetings of the Society.

Article 2—*Membership Committee.* The Membership Committee shall seek desirable members and receive applications for membership in the Society. The Executive Committee shall make such recommendations to them as are advisable.

Article 3—*Organization Committee.* The Organization Committee shall develop such plans as may be found desirable to establish state, district, and local affiliated groups of hospital pharmacists.

Article 4—*Minimum Standard Committee.* The minimum standard committee shall develop standards for hospital pharmacy training and specialized hospital pharmacy courses.

CHAPTER VI. *Affiliation:* The Society shall be affiliated with the AMERICAN PHARMACEUTICAL ASSOCIATION and subject to such rules and regulations as are or may be provided by that Association to govern its affiliates.

CHAPTER VII. *Publication:* The *Journal of the American Pharmaceutical Association, Practical Pharmacy Edition,* shall be the official publication of the Society. All papers presented at annual meetings of the Society shall be submitted to the Editor of that Journal for review and, if suitable, for publication. Papers may be released for publication elsewhere on the approval of the Editor of the Journal.

CHAPTER VIII. *Annual Meetings:* Annual meetings of the Society shall be held in conjunction with annual meetings of the AMERICAN PHARMACEUTICAL ASSOCIATION.

CHAPTER IX. *Quorum:* Fifteen members shall constitute a quorum for an annual meeting.

CHAPTER X. *Order of Business:* At stated or adjourned meetings, business shall proceed in the following order:

1. Call to order
2. Roll call of delegates
3. Reading and adoption of minutes
4. Appointment of committees
5. Ratification of Special Committees
6. Receipt of reports and other communications to the Society
7. Receipt of resolutions, all of which shall be in writing and submitted at the first session of the Society
8. Unfinished business
9. New business
10. Report of resolutions committee
11. Report of nominating committee
12. Election and installation of officers
13. Adjournment

CHAPTER XI. *Amendments:* Any proposition to alter or amend these By-Laws shall be submitted at the first session of an annual meeting of the Society and voted upon at the next session of the same annual meeting.

Hospital pharmacists who approve of the objectives as stated in the above Constitution, and who wish to join in the task of building a live, dynamic organization devoted to the problems and interests of institutional pharmaceutical practice, are invited to apply for membership in the AMERICAN SOCIETY of HOSPITAL PHARMACISTS. For a limited time the privilege of charter membership is available. Address your application to Miss Hazel E. Landeen, Secretary, Christian R. Holmes Hospital, Cincinnati, Ohio.